

IAP9 Rec'd PCT/PTO 09 DEC 2005

**BRACED TIMBER TRUSSES****Technical area**

This invention relates to the area of building construction and in particular to the area of the use of parallel chorded trusses such as are commonly used for supporting floors and internal walls and the like.

**Background to the invention**

It is well known for parallel chorded trusses to be used as long span floor joists among other applications. These generally comprise wooden horizontal members separated and connected by cross-bracing multi toothed nail plate connector members.

The advantage of such trusses is that they provide good access between the cross members for facilities such as plumbing, electrical services and air conditioning ducts and the like. A disadvantage however is in the quality of the wood required, as for long spans it may be necessary to use hard woods which are quite costly when compared with soft woods and laminates which are used in other truss type members.

The alternative is to use laminated plywoods as the wooden horizontal members. Where this method is used the horizontal members are grooved on their inner faces to accept a longitudinal sheet of wooden material, preferably some relatively

inexpensive fibreboard or the like, which passes between them to provide the requisite strength to the truss assembly.

Clearly use of the latter type of truss prohibits the possibility of cabling or any other services being able to pass through the truss as it is not possible to pierce the longitudinal sheet without adversely affecting the structural integrity of the truss. Although this type of truss is less expensive than that previously described its limitations are clear.

#### **Outline of the Invention**

It is an object of this invention to provide a stable support means in the form of a parallel chord truss which substantially overcomes the difficulties produced by the use of either of the previously described trusses.

The invention is a parallel chord truss which includes elongate lateral chord members, of which at least one chord member is continuous along the length of the truss, in fixed engagement with a penetrable separating member, the lateral chord members having cross bracing means which permit access to the penetrable member.

It is preferred that the lateral chord members be manufactured from a wood laminate such as plywood.

It is further preferred that the penetrable separating member be a particle board elongate sheet in sleeved engagement with each chord member.

While it is preferred that the separation member be of a material such as a particle or fibre board, which is sufficiently strong and easy to cut, it is within the scope of the invention that any appropriate material could be used.

Additionally any appropriate cross bracing material could be used however it is preferred that they be of the type that are multi toothed nail plate connectors and are nailed at each end to each chord member.

It is further preferred that the cross bracing members be oriented generally diagonally from one chord member to another.

It is also preferred that in at least one embodiment of the invention one of the chord members is discontinuous to accommodate the positioning of the truss over an obstacle which can be positioned within the aperture defined by the discontinuity in the chord member and penetrable separating member.

In order that the invention may be more readily understood we will describe by way of non limiting example specific embodiments of the invention with reference to the accompanying drawing figures.

**Brief Description of the Drawing Figures**

Fig. 1 Is a perspective view of the chorded truss of the invention;

Fig. 2 Is a perspective view of part of wood laminate chorded truss or I Joist with chipboard separation showing their interengagement;

Fig. 3 Shows a standard joist of the invention reinforced with cross bracing members and providing apertures for cables, ducting and the like;

Fig. 4 Shows a top chord support joist embodiment of the invention with a concealed steel beam;

Fig. 5 Shows joists of the invention abutting a steel beam;

**Description of a Preferred Embodiment of the Invention**

In a first embodiment of the invention (Figure 3) a chord truss 10 is provided in which the longitudinal chord members 11 and 12 are manufactured from a plywood laminate material.

The interior faces of the chord members 14 and 15 are grooved 16 to accept a spacing sheet 20 of wood particle board or fibreboard which is able to be cut with a hole saw or the like to permit other materials such as ducting and electrical cabling to pass through apertures 30 in the truss 10.

Such excision of apertures in the truss would as a general rule significantly reduce the overall strength of the truss however the truss of the invention is provided with

bracing members 40 passing between the chords in the form of diagonally oriented multi toothed nail plate connectors which connect between opposing chords. These bracing members can be generally unitary 40 or singular 50 depending on the particular application.

In this embodiment of the invention diagonal supports are used to maximise the strength of the truss however the precise orientation of the bracing members is not limiting in the invention.

Basically the invention lies in the provision of cross bracing members 40 and 50 between opposing chords 11 and 12 of a chord truss such that access by way of apertures 30 is provided in the wooden panel 20 to permit cabling and the like to pass through it.

By this means a relatively inexpensive chord truss manufactured preferably from laminated wood may be strengthened sufficiently for access means through the truss to be provided for the passage of other materials.

It is envisaged that apertures having a diameter of up to 90% of the width of the chord separating panel could be bored in the panel while retaining the requisite strength of an unbraced truss of that type.

In a second embodiment of the invention (Figure 4) there is a discontinuity in the truss of the invention below an upper chord 11 which permits it to be located over a steel beam 60 such that it is concealed by the support chord 11.

In a third embodiment of the invention two chord trusses in accordance with the invention abut a steel beam 60 and are supported on an interior lower face of the beam. At either side of this junction bracing members 50 strengthen each chord truss at this point.

Whilst we have described herein embodiments of the invention in different applications it is envisaged that other embodiments of the invention will exhibit any number of and any combination of the features previously described and it is to be understood that variations and modifications in this can be made without departing from the spirit and scope thereof.